

KATE J. CLAYCOMBE, Ph.D.

CURRICULUM VITAE

Contact Information:

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Education:

1999	Ph.D.	Nutrition, University of Tennessee, Knoxville, TN.
1993	M.S.	Biology, East Tennessee State University, Johnson City, TN.
1991	B.S.	Biology, East Tennessee State University, Johnson City, TN.

Professional Positions:

2010-present	Research Scientist, USDA ARS, Grand Forks Human Nutrition Research Center
Nov 2001- July 2010	Assistant Professor, Michigan State University, Department of Food Science and Human Nutrition, and Cell and Molecular Biology Program
1999-2001	Scientist III, Jean Mayer USDA/ Human Nutrition Research Center at Tufts University, Nutritional Immunology Laboratory (Dr. Simin N. Meydani)
1999-2002	Graduate Research Assistant, Nutrition Department, University of Tennessee at Knoxville
1993-1995	Research Technician, Nutrition Department, University of Tennessee at Knoxville
1991-1993	Graduate Research Assistant, Biological Sciences Department, East Tennessee State University

Awards, Honors, and Service:

- 2011 Chair, Nutrient and Gene Interaction Research Interest Section, American Society of Nutrition
- 2011 Chair, North Central Regional Multistate Research Project NC-1039 Group, n-3 Polyunsaturated Fatty acid and Human Health
- 2011 Organizing co-chair, Symposium “Adipose Dysfunction: Interaction of ROS and Inflammation,” 2012 EB Meetings, San Diego, CA.
- 2011 Session Chair, Mini-symposium “Polyunsaturated Fatty Acids and Health”, 2012 EB Meetings, San Diego, CA.
- 2010 Chair, Molecular Mechanisms of Obesity Track, The Obesity Society Program Committee
- 2010 Session Chair, Symposium “Inflammatory and Molecular Links Between Obesity and Chronic Diseases” Symposium “Inflammation and Immune Dysfunction”, 2010 Annual Obesity Society Meeting, San Diego, CA.
- 2009 Session Chair, Symposium “Inflammation and Immune Dysfunction”, 2009 Annual Obesity Society Meeting, Washington D.C.

- 2009 Co-chair, “Cytokines and other Secreted Factors” session, 2009 Annual Obesity Society Meeting, Washington D.C.
- 2008 Chair, Symposium “Human adipose tissue as endocrine organ”, 2008 Annual Obesity Society Meeting, New Orleans, LA
- 2007 Session Co-Chair and Organizer, 2007 Experimental Biology Symposium “Obesity-associated Inflammation, Immune Dysfunction, and Effects of Nutrient and Lifestyle Modification”, Washington D.C.
- 2007 Tekeda Pharmaceutical Company, Educational Grant Award for Experimental Biology Symposium.
- 2007 Michigan State University, Intramural Research Grants Program Award
- 2007 Expert Panel Member for the Life Science Research Office Special Meeting on Obesity, Inflammation and Nutrigenomics, FASEB office, Bethesda, MD.
- 2006 Session Co-chair of mini-symposiums, Nutrient Regulation of Immune function Session I and session II, 2006 Experimental Biology Meetings.
- 2005 Session Chair, Obesity Session for the “Creating Cardiovascular Innovations through Collaboration: Pfizer and MSU”
- 2005-2006, Chair, North Central regional Multistate Research Project, N-3 polyunsaturated fatty acid and Human Health
- 2005-2006, Michigan State University Agricultural Experimental Station, Federal Funds in Support of Graduate Education award
- 2004-2005, Secretary, North Central regional Multistate Research Project, N-3 polyunsaturated fatty acid and Human Health
- 2004-2005, Michigan State University Agricultural Experimental Station, Federal Funds in Support of Graduate Education Award
- 2004-2006, Health and Biomedical Research Initiative Award, Cardiovascular Disease group, Michigan State University
- 2004-2006, Michigan State Agricultural Experimental Station Project Green Research Award
- 2002 ROIP research seed grant Award, Michigan State University, College of Human Ecology
- 2002 Chair of The 5th International Congress on Essential Fatty Acids and Eicosanoids, PUFAs/Eicosanoids, Inflammation and Immune Function Session
- 2000 The American Aging Association Paul E. Glenn Award for Postdoctoral Research
- 1998 North American Association of Obesity, Travel Award for the International Congress of Obesity
- 1998 FASEB Summer Conference Travel Award to graduate student, Snowmass, Colorado
- 1998 Chancellor’s Outstanding Graduate Student Teaching Award, University of Tennessee
- 1998 Proctor & Gamble Student Research Award, American Society for Nutritional Science
- 1997 Predoctoral Fellowship, American Society for Nutritional Science
- 1997 Proctor & Gamble Student Research Award, American Society for Nutritional Science
- 1997 The Physician’s Medical Education and Research Foundation Award
- 1996 Founder’s Award, 31st Annual Southeastern Regional Lipid Conference, November, Cashier, North Carolina
- 1995 Scholarly Activity Research Incentive Fund, University of Tennessee
- 1992 American Heart Association Graduate Student Summer Research Award
- 1992 Sigma-Xi, Grant-in Aid in Research

Invited Talks:

- 2011 University of North Dakota School of medicine, “Origin of Obesity: Maternal diet,

- Epigenetics, and Adipose Tissue', September 16.
- 2011 FASEB Summer Research Conference, "Nutrient Control of Metabolism and Cell Signaling", Steamboat Springs, CO, August 7-12.
- 2011 FASEB Summer Research Conference, "Nutritional Immunology: Role in Health & Disease", Carefree, AZ, July 5-12.
- 2011 Nutrition and Wellness Research Center Symposium: origin of Obesity: Maternal, Epigenetics, and Life Style", Iowa State University, May 9-11.
- 2009 The Third Military Medical University, "Obesity- associated inflammation and immune dysfunction: Role of adipose tissue".
- 2009 Chongqing Medical University, "Obesity- associated inflammation and immune dysfunction: Role of adipose tissue".
- 2009 University of California at Davis, "Obesity-Associated Metabolic Dysregulation and Inflammation: Role of Adipose Tissue".
- 2008 University of Illinois, "Obesity-associated Inflammation: Role of Adipose Tissue and Anti-inflammatory Nutrients".
- 2007 FASEB Summer Conference, Nutritional Immunology: Its Role in Health and Disease, Tucson, AZ, August 2007.
- 2006 Invited speaker, 2nd Annual Nutrigenomics Conference at MSU, Department of Food Science and Human Nutrition and Department Radiology of MSU
- 2005 Invited speaker, Lillian Fountain Smith Conference, Colorado State University, Fort Collins, CO
- 2005 Invited speaker for seminar program, College of Veterinary Medicine at Michigan State University, Department of Pathobiology and Diagnostic Investigation
- 2004 Invited chair and speaker, "Obesity Session" for the "Creating Cardiovascular Innovations through Collaboration: Pfizer and MSU"
- 2004 FASEB Summer Conference on "Integrative Approaches to Understanding Obesity and its Metabolic and Clinical Consequences", Pine Mountains Georgia
- 2003 FASEB Summer Conference on Impact of Nutritional Status on Immune Function and Health, Inflammation session, Obesity-induced systemic inflammation: role of Interleukin-6 (IL-6), C-reactive protein (CRP) and Complement System, Saxton Rivers, VT
- 2002 Invited Chair and speaker, The 5th International Congress on Essential Fatty Acids and Eicosanoids, PUFAs/Eicosanoids, Inflammation and Immune Function Session, Eicosanoids and Immune Function in the Aged: Dietary Modification, Taipei, Taiwan

Professional Committee Service and Memberships:

Professional and Committee Assignments and Memberships Assignments

- Member, NIH NCCAM P19 Study Section, 2011.
- AHA Region IV Cardiorenal peer review committee (2007-2009)
- American Society of Nutritional Science, Nutritional Immunology Research Interest Section, Steering Committee (2003-2004).
- Invited to review USDA NIFA grant proposals, August 2011.
- Invited to review Obesity Center grant proposals, NIH, 2006.
- Invited to review USDA NRI grants, 2005.

National/Professional Society Memberships

- The Obesity Society
- American Nutrition Society
- American Physiological Society

Agency, Center, University and Departmental Committee Services

- University of North Dakota, Epigenetics Focus Group (2010-present)
- Search Committee Member, Research Leader Position at USDA ARS GF HNRC (2011)
- Search Committee member, Research Scientist Position at USDA ARS GF HNRC (2011)
- Michigan State University, Women's Advisory Committee to the Provost (2002-2005)
- Michigan State University, Appeals Board, (2002-2003)
- Michigan State University, Department of Food Science and Human Nutrition, Nutritional Sciences Undergraduate Committee, (2002-2010).
- Michigan State University, Department of Food Science and Human Nutrition, Spring Seminar Committee
- Michigan State University, Nutritional Immunology Program co-founder and organizer of visiting scholar and journal clubs (2003-2006).
- Michigan State University, Department of Food Science and Human Nutrition, Graduate Advisory Committee and chair, (2005-2006).
- Michigan State University, Department of Food Science and Human Nutrition, GM Trout Visiting Scholar Seminar Program

Ad hoc reviewer

- Journal of Nutrition
- Diabetes
- Journal of Nutritional Biochemistry
- Obesity
- Medicinal Food
- American Journal of Physiology
- Journal of Experimental Biology and Medicine
- International Journal of Obesity
- Obesity Journal
- Clinical and Experimental Pharmacology and Physiology

Publications:

Peer reviewed Journal Articles (published and accepted)

1. Nalin Siriwardhana, Nishan S Kalupahana, Sarah Fletcher, Wenting Xin, **Kate J Claycombe**, Ling Zhao, Arnold M Saxton, Annie Quignard-Boulange, and Naima Moustaid-Moussa, N-3 and n-6 polyunsaturated fatty acids differentially regulate adipose angiotensinogen and other inflammatory adipokines, in part via NF-kB dependent mechanisms, In press, J Nutritional Biochem, August 2011.
2. Nishan S. Kalupahana, **Kate J. Claycombe**, Naima Moustaid-Moussa, (n-3) Fatty Acids Alleviate Adipose Tissue Inflammation and Insulin Resistance: Mechanistic Insights, Adv Nutr, 2(4): 304-316, July 2011.
3. Hsueh HW, Zhou Z, Whelan J, Allen KG, Moustaid-Moussa N, Kim H, **Claycombe KJ**. Stearidonic and eicosapentaenoic acids inhibit interleukin-6 expression in ob/ob mouse adipose stem cells via Toll-like receptor-2-mediated pathways. J Nutr. 141:1260-6, July 2011.
4. Kalupahana NS, **Claycombe KJ**, Newman SJ, Stewart T, Siriwardhana N, Matthan N, Lichtenstein AH, Moustaid-Moussa N. Eicosapentaenoic acid prevents and reverses insulin resistance in high-fat diet-induced obese mice via modulation of adipose tissue inflammation. J Nutr. 140:1915-22, Nov 2010.

5. Shin AC, MohanKumar SM, Sirivelu MP, **Claycombe KJ**, Haywood JR, Fink GD, MohanKumar PS. Chronic exposure to a high-fat diet affects stress axis function differentially in diet-induced obese and diet-resistant rats. *Int J Obes (Lond)*, 34:1218-26, July 2010.
6. Han D, Yang B, Olson LK, Greenstein A, Baek SH, **Claycombe KJ**, Goudreau JL, Yu SW, Kim EK. Activation of autophagy through modulation of AMP-activated protein kinase protects pancreatic beta-cells from hyperglycemia, *Biochem J.* (425) 541-55, 2009.
7. Wortman P, Miyazaki Y, Kalupahana NS, Kim S, Hansen-Petrik M, Saxton AM, **Claycombe KJ**, Voy BH, Whelan J, Moustaid-Moussa N. N-3 and n6 polyunsaturated fatty acids differentially modulate prostaglandin E secretion but not markers of lipogenesis in adipocytes., *Nutr Metab.* (6) 5, 2009.
8. Aziz, K, Berger, K, **Claycombe, KJ**, Ma, H, Huang, R, Patel, R, Abela, G.S. Non-invasive detection and localization of vulnerable plaque and arterial thrombosis using CTA/PET, *Circulation.* (117) 2061-2070, 2008.
9. **Claycombe, K.** King, L. Fraker, P. A role for leptin in sustaining lymphopoiesis and myelopoiesis. *PNAS.* (105) 2017-2021, 2008.
10. Chun, OK, Chung, SJ, **Claycombe, KJ**, Song, WO. Serum C-reactive protein concentrations are inversely associated with dietary flavonoid intake in U.S. adults, *J. Nutr.* (138) 753-760, 2008.
11. Zhou, HR, Kim, EK, Kim, H, **Claycombe, KJ**. Obesity -associated mouse adipose stem cell secretion of monocyte chemotactic protein-1 (MCP-1), *Am. J. Physiol.* (293) E1153-1158, 2007.
12. Harkins, JM, Moustaid-Moussa, N, Penner, KM, Pestka, JJ, Chung, YJ, North, CM, **Claycombe, KJ**. Expression of interleukin-6 is greater in preadipocytes than in adipocytes of 3T3-L1 cells and C57BL/6J and ob/ob mice. *J Nutr.* (134) 2673-2677, 2004.
13. Wang Y, Jones Voy B, Urs S, Kim S, Soltani-Bejnood M, Quigley N, Heo YR, Standridge M, Andersen B, Dhar M, Joshi R, Wortman P, Taylor JW, Chun J, Leuze M, **Claycombe K**, Saxton AM, Moustaid-Moussa N. The human fatty acid synthase gene and de novo lipogenesis are coordinately regulated in human adipose tissue. *J. Nutr.* (134) 1032-1038, 2004.
14. Wu D, Marko M, **Claycombe K**, Paulson KE, Meydani SN. Ceramide-induced and age-associated increase in macrophage COX-2 expression is mediated through upregulation of NF- kappa B activity. *J Biol Chem.* (278) 10983-10992, 2003.
15. Heo YR, **Claycombe K**, Jones BH, Wright P, Truett GE, Zemel M, Banz W, Maher M, Moustaid-Moussa N. Effects of Fatty (fa) Allele and High-Fat Diet on Adipose Tissue Leptin and Lipid Metabolism. *Horm Metab Res.* (34) 686-690, 2002.
16. **Claycombe KJ**, Wu D, Meydani SN. Eicosanoids and immune function in the aged: dietary modification. *Pro. Int. Con. Essen. Fatty Acids and Eicosanoids.* (1) 227-229, 2002.
17. **Claycombe K.J.**, Wu D., Palmer H., Nikolova-Karakashian M., Merrill Jr. A.H., Paulson E. Meydani S.N. Age-associated increase in macrophage (Mø) cyclooxygenase-2 (cox-2) expression is mediated by ceramide. *J. Biol. Chem.* (277) 30784-30791, 2002.
18. Kim S, Whelan J, **Claycombe K**, Taylor J, Moustaid-Moussa N. Angiotensin II increases leptin secretion by adipocytes via a prostaglandin-independent mechanism. *J Nutr.* (132) 1135-1140, 2002.
19. Koga T, **Claycombe K.J**, Meydani M. homocysteine increases monocyte and T cell adhesion to human aortic endothelial cells. *Atherosclerosis.* (16) 365-374, 2002.

20. Kim S, Dugail I, Standridge M, **Claycombe K**, Chun J, Moustaid-Moussa N. Angiotensin II- responsive element is the insulin-responsive element in the adipocyte fatty acid synthase gene: role of adipocyte determination and differentiation factor 1/sterol-regulatory-element-binding protein 1c. *Biochem J.* (357) 899-900, 2001.
21. **Claycombe KJ**, Meydani SN. Vitamin E and genome stability. *Mutat Res.* (475) 37-44, 2001.
22. **Claycombe, KJ**, Jones, BH, Guo, Y, Wilkison, WO, Zemel, MB, Chun, J. Moustaid, N. Transcriptional regulation of the adipocyte fatty acid synthase gene by the agouti gene products: interaction with insulin. *Physiol. Genom.* (3) 157-162, 2000.
23. **Claycombe, KJ**, Xue, B, Maynatte, RL, Zemel, MB, Moustaid- Moussa, N. Regulation of leptin by insulin and agouti. *Physiol. Genom.* (2) 101-105, 2000.
24. Moustaid-Moussa, N, **Claycombe, KJ**. The yellow mouse obesity syndrome and mechanism of agouti-induced obesity. *Obe. Res.* (7) 506-514, 1999.
25. Jones, BH, Standridge, MK, **Claycombe, KJ**, Smith, PJ, Moustaid-Moussa, N. Glucose induces expression of stearoyl-CoA desaturase in 3T3-L1 adipocytes. *Biochem. J.* (335) 405-408, 1998.
26. **Claycombe, KJ**, Jones, BH, Standridge, MK, Guo, Y, Chun, JT, Taylor, JW, Moustaid-Moussa, N. Insulin increases fatty acid synthase gene transcription in human adipocytes. *Am. J. Physiol.* (274) R1253-R1259, 1998.
27. Mancuso, P, Whelan, J, DeMichele, SJ, Snider, CC, Guszczka, JA, **Claycombe, KJ**, Smith, GT, Gregory, TJ, Karlstad, M.D. Effects of eicosapentaenoic and gamma-linolenic acid on lung permeability and alveolar macrophage eicosanoid synthesis in endotoxic rats. *Crit. Care. Med.* (25) 523-532, 1997.
28. **Claycombe, KJ**, Lee, DW, Miller, H.A. Proportions of rat ANP-secreting cells that are cardiomyocytes and that synthesize the hormone. *Am. J. Physiol.* (268) H265-270, 1995.

Additional Publications

Book chapters

Meydani SN, Claycombe KJ, Sacristan C. Vitamin E and gene expression. 2001 (Chapter 16) 393-424. Nutrition-Gene Interactions in Health & Disease. (1st Edition, Modern Nutrition Series), CRC Press, Boca Raton, FL.

Bulletins

1. Claycombe, K.J., 2004 “C-reactive protein, Obesity and Immune System”, MAES/MSU
2. Claycombe, K.J., 2005“Montmorency tart cherries: The healing fruit”, Cherry Marketing Institute
3. Claycombe, K.J., 2008“Researchers make discoveries on what does and does not affect immune system”, MSU News Bulletin

Newspaper article

Chicago Tribune article. "Salmon Dilemma, With higher PCB levels showing up in farmed variety, are the health benefits worth the risk?", Interviewed and quoted in the article, January 28, 2004.

Press Release

“Effects of Cherry Flavonoids on Cardiovascular Disease Biomarkers”, Quoted in the press conference during the National Cherry Festival by Cherry Marketing Institute, Traverse City, Michigan, April 2004.

Peer reviewed Journal Articles (in review or in preparation)

1. Zhou, Z, Hsueh, HW, Schroeder, N, Nair, MG, Lee, Y, Joh, S, Moustaid-Moussa, N. **Claycombe, KJ.** Inhibitory effects of tart cherry extract, tart cherry anthocyanins, atorvastatin calcium on interleukin-6 production in adipose stem cells. In revision, 2011.
2. Zhou, Z, Zhou, HR, Kim, EK, Ko, T, **Claycombe, KJ.** Signal transducer and activator of transcription 3 (stat3) is differentially regulated under basal and leptin-stimulated conditions in the adipose CD34⁺ cell. In review, 2012.

Research Project Funds:

Funded and completed and current:

- Office of Vice President of Research and Graduate Studies at the Michigan State University, Intramural Research Grants Program for New Investigator, “Obesity-Associated Inflammation and Adipose Tissue”, 2005-2007, Role: PI.
- Office of Vice President of Research and Graduate Studies at the Michigan State University, Biomedical and Health Research Initiative, Cardiovascular Group, 2005-2007, 2006-2009, Role: Co-investigator.
- 2007, Tekeda Pharmaceutical Company, Educational Grant Award for Experimental Biology Symposium, Role: PI.
- Project Green, Michigan State University Agricultural Experimental Station, Project Continuation Award “Preventive Effects of Tart Cherries on Cardiovascular Diseases Risk Biomarkers: C- Reactive Protein and Interleukin-6”, 2005-2006, Role: PI.
- Michigan Agricultural Experimental Station, Multistate Research Project Fund, #MICL02036, “N-3 Polyunsaturated Fatty Acid and Human Health and Disease”, 2002-2007, Role: PI.
- Cherry Marketing Institute, Research Grant, Preventive Effects of Tart Cherries on Cardiovascular Diseases Risk Biomarkers: C- Reactive Protein and Interleukin-6, 2004-2005, Role: PI.
- ROIP research seed grant, Michigan State University, College of Human Ecology, 2002-2003, “obesity-induced Cardiovascular Diseases: Inhibitory Effects of N-3 Fatty acid and vitamin E on Plasma C-reactive Protein (CRP) and interleukin-6 (IL-6) concentrations”, Role: PI.